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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,213

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James F. Leary

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,213	<b>Applicant(s)</b> LEARY ET AL.	
	<b>Examiner</b> BO PENG	<b>Art Unit</b> 1648	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/14/07.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-50 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

1. The Office acknowledges Applicant's preliminary amendment filed on January 5, 2007.

Claims 1-50 are pending.

### ***Election/Restrictions***

2. Restriction is required under 35 U.S.C. 121 and 372.

3. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-31 and 42-50, drawn to the technical feature of a nanodelivery system.

Group II, claim(s) 32-41, drawn to the technical feature of a process for producing a multi-functional and multi-step nanodelivery system.

4. According to PCT Rule 13.2, unity of invention exists only when there is a shared same or corresponding special technical feature among the claimed inventions. In the present case, Claim 27 (the broadest claim) is directed to a multi-functional and multi-step nanodelivery system having one or more nanoparticles, the nanoparticles comprising: a. one or more targeting molecules adapted to target the nanoparticle to one or more cells; and b. one or more cellular entry facilitating molecules coupled to the targeting molecules; the nanoparticle being adapted to manufacture quantities of the desired drug or gene from an intracellular location of the cell using one or more intracellular native components. However, this technical feature is not a contribution over the art in view of Rozenberg (WO 01/12235). Rozenberg teaches a target artificial gene

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delivery vehicle (TAGD) for drug or gene delivery, which TAGD comprises a multifunctional surface moiety surrounding a recombinant viral core particle (nanoparticles), wherein the surface target moiety is an antibody or antibody fragment, see e.g. Abstract and pp. 10-14. Thus, the technical features of the claimed inventions are not a contribution over the art and the claims lack unity.

### *Species Election*

5. This application contains claims directed to more than one species of the generic invention. These species do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features. Applicant is required under 35 U.S.C. § 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

6. If Group I is elected, Applicant is required elect ONE of nanodelivery systems (1) to (9):
- (1) The nanodelivery system of Claims 1 (in part), 3-7, 11-14 and 17-21;
  - (2) The nanodelivery system of Claims 1 (in part) and 2;
  - (3) The nanodelviery system of Claims 1 (in part), 15 and 16;
  - (4) The nanodelviery system of Claims 1 (in part) 8-10 and 27-30;
  - (5) The nanodelivery system of Claims 22 (in part)-24;
  - (6) The nanoparticle of Claims 22 (in part) and 25;
  - (7) The nanodelivery system of Claims 22 (in part) and 26;
  - (8) The nandelivery system of Claim 31; OR
  - (9) a multilayered nanoparticle of claims 42-50.

7. If any of nanodelivery systems (1)-(9) above is elected, Applicant is required to elect: the nanoparticle comprises:
- (a) the drug; OR
  - (b) a gene.

8. If nanodelivery system (1) is elected, Applicant is required to further elect following embodiments (i) (ii) (iii) and (iv):

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- (i) The target molecule comprising:
  - (a) an antibody;
  - (b) DNA;
  - (c) RNA;
  - (d) a peptide sequence;
  - (e) a ligand;
  - (f) a thioaptamer;
  - (g) a combination of (a)-(d), Applicant need to further specify one specific combination, if (f) is elected;
  - (h) the targeting molecules are adapted to target a desired location with Boolean logic sequences of positive and negative identification; OR
  - (i) virus-associated or mimicking molecules.
- (iii) the molecular biosensor has one of the following characteristics:
  - (a) switches on and off production of quantities of the drug or gene based in the feedback loop at the single cell level. (Claims 11 and 13)
  - (b) periodically checks for an expressed gene (Claim 12);
  - (c) senses intracellular stress-related molecules causing damage to a cell (Claim 14);OR
  - (d) locates a target cell or cellular compartment (Claim 17).
- (iv) The nanodelivery system
  - (a) are coated to reduce cytotoxicity;
  - (b) comprises a magnetic nanoparticle (Claims 19); OR
  - (c) comprises a semiconductor material core (Claim 21).

9. If nanodelivery system (4) is elected, Applicant is required to elect the intracellular organelle comprise:

- (a) a nucleus;
- (b) a mitochondria;
- (c) an endoplasmic reticulum;
- (d) other sub cellular parts or regions of the cell, OR
- (e) a combination thereof; Applicant is required to further specify one specific combination, if (e) is elected.

10. If nanodelivery system (9) is elected, Applicant is required to elect following embodiments (i) and (ii):

- (i) the molecule biosensor is:
  - (a) a protease-based biosensor;
  - (b) an promoter-based biosensor; OR
  - (c) has control in a feedback loop at a single cell level.

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(ii) the diagnostic or therapeutic molecule is:

- (a) a drug molecule;
- (b) a gene molecule; OR
- (c) an enzyme molecule.

11. According to PCT Rule 13.2 and to the guidelines in Section (f)(i)(A) of Annex B of the PCT Administrative Instructions, all alternatives of a Markush Group must have a common property or activity. According to PCT Rule 13.2 and to the guidelines in Section (f)(i)(B)(I) of Annex B of the PCT Administrative Instructions, all alternatives of a Markush Group must have a common structure. In the instant case, all nanodelivery systems (1) to (9) do not share either common activities or common structures. Therefore, these species do not relate to a single general inventive concept under PCT Rule 13.1 and PCT Rule 13.2.

12. **Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.**

13. The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

14. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

15. Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

16. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim

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will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

17. In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See “Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b),” 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

18. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bo Peng, Ph.D. whose telephone number is 571-272-5542. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Bruce Campbell, Ph.D. can be reached on 571-272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/B. P./

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